REMARKS

Claims 1 – 25 are now pending in the application. The Examiner is respectfully requested to reconsider and withdraw the rejections in view of the amendments and remarks contained herein.

REJECTION UNDER 35 U.S.C. § 102

Claims 1 – 25 stand rejected under 35 U.S.C. § 102(e) as being anticipated by Takahashi et al. (U.S. Pat. No. 6,266,119). This rejection is respectfully traversed. Although claim 2 was not specifically rejected in the office action, claim 2 is treated as being rejected for the same reasons as set forth with respect to claims 14 and 15.

Claim 1 has been amended to call for directly connecting a first terminal bank formed on the surface of a substrate to a second terminal bank formed on the surface of a mount base member. The second terminal bank is at a pitch which is smaller than a pitch of the first terminal bank when the substrate is thermal press bonded to the mount base member. When the substrate and the mount base member are deformed during the thermal press bonding, the pitch of the first terminal bank and the pitch of the second terminal bank become substantially equal.

Claim 9 has also been amended to call for fabricating a second terminal bank at a pitch smaller than a pitch of a first terminal bank and directly connecting the first terminal bank to the second terminal bank. During a thermal compression bonding step, deformation causes the pitch of the first terminal bank and the pitch of the second terminal bank to become substantially equal.

Takahashi does not disclose a second terminal bank formed on the surface of the mount base member at a pitch which is smaller than a pitch of the fist terminal bank. Takahashi also does not disclose that the mount base member has a thermal expansion coefficient that is larger than a thermal expansion coefficient of the substrate. Furthermore, Takahashi does not disclose that the connection step directly connects the first terminal bank to the second terminal bank or that the first terminal bank and second terminal bank become substantially equal to each other in pitch when the substrate and mount base member are deformed during thermal compression bonding of the substrate and mount base member.

Takahashi, rather, discloses at column 2, lines 29-40, the following:

> "For example, when a flexible printed circuit (FPC) board (referred to as "FPC") is liable to cause a dimensional change of its base film due to, e.g., heat treatment during the production of the FPC, thus resulting in a dimensional error (tolerance) a to a dimensional accuracy of an electrode pattern. The dimensional error of the electrode pattern on the FPC is larger than that on the glass substrate 22 and is generally ca. ± 0.1%. Even when the dimensional error is decreased by finely adjusting a size of a mask used in the electrode pattern formation, the resultant dimensional error is ca. ± 0.05%."

Applicant respectfully asserts that the mere disclosure of "finely adjusting a size of a mask used in the electrode pattern formation" is insufficient to anticipate the method of the claimed invention. Furthermore, Applicant respectfully asserts that a claim is anticipated only if each and every element as set forth in the claim is disclosed in the prior art reference. The identical invention must be shown in as complete detail as is contained in the claim.

Takahashi teaches decreasing dimensional error by finely adjusting a size of a mask used in the electrode pattern formation. Takahashi, however, is completely silent with respect to the nature of this disclosed "finely adjusting" step. Takahashi is also completely silent with respect to the resulting pitch pattern. It is improper to read Takahashi as disclosing more than that which is actually disclosed.

Claims 1 and 9 call for the second pitch to be smaller than the first pitch prior to bonding and for the second pitch to be substantially equal to the first pitch after bonding. The pitches become substantially equal by utilizing the thermal deformation of the substrate and the mount base member. More specifically, when the mount base member is thermal compression bonded to the substrate, the mount base member deforms. This deformation causes the pitch of the first terminal bank to become substantially equal to the pitch of the second terminal bank. By utilizing such a method, the claimed invention ensures that the terminal banks are directly connected to each other. In contrast, Takahashi discloses dimensional accuracy problems in electrode patterns. Furthermore, in column 5, lines 1-10 of Takahashi, it is disclosed,

> "As specifically shown in FIGS. 7A and 7B, the (second) electrodes 35a disposed with a prescribed pitch. Similarly, on the driver board 36 and the connection sheet 37, stripe electrodes 36a and 37a are formed, respectively.
>
> When the stripe electrodes 36a are positionally deviated by a spacing d from the opposite stripe electrodes 35a as shown in FIG. 7A, an electrical connection between the electrodes 35a and 36a are ensured by disposing (connection) electrodes 37a therebetween so as to overlap the electrodes 35a and 37a by widths d1 and d2, respectively, as shown in FIG. 7B." (emphasis added)

As described above, Takahashi does not disclose directly connecting terminal banks to each other. The teachings of Takahashi require the use of a

connection electrode 37a. As such, the claimed method is different from the method taught by Takahashi and, therefore, is not anticipated.

Moreover, although Takahashi allegedly teaches that a flexible printed circuit can be thermally deformed, Takahashi as described above, teaches a completely different method that utilizes connection electrodes to ensure electrical contact between electrodes. This directly contrasts and teaches away from the claimed method of utilizing terminal banks with different pitches that become substantially equal by utilizing the deformation of the substrate and mount base member.

With respect to claim 12, the pitch of the second terminal bank is a/b times the pitch of the first terminal bank. The first terminal bank expands in width in the transverse direction thereof on the base member by a times and the second terminal bank expands in width in the transverse direction thereof on the mount base member by b times.

Takahashi discloses one dimensional error for the FPC. Takahashi discloses another dimensional error for the glass substrate. Takahashi, however, is completely silent with respect to the pitch ratio as claimed. Furthermore, Takahashi is completely silent with respect to the first terminal bank expanding in width in the transverse direction thereof on the base member by a times and the second terminal bank expanding in width in the transverse direction thereof on the mount base member by b times. Therefore, Applicant respectfully asserts that claim 12 is not anticipated.

With respect to claim 14, Takahashi does not disclose a plurality of second alignment marks formed on the surface of the mount base member that are

spaced mutually more apart than the spacing of the first alignment marks. Therefore, claim 14 is not anticipated.

As for claim 23, Takahashi does not disclose a mount base member that comprises second terminal bank formed at a pitch which is smaller than a pitch of the first terminal bank formed on a substrate and directly connected to the first terminal bank. Furthermore, Takahashi does not disclose a mount base member that has a linear thermal expansion coefficient that is larger than that of the substrate. Therefore, the claimed mount base member is not anticipated.

Claim 24 calls for a pitch of the second terminal bank prior to thermal compression bonding being a/b times the pitch of the first terminal bank. Subsequent to the thermal compression bonding, the first terminal bank expands in width in the transverse direction thereof on the substrate by a times and the second terminal bank expands in width in the transverse direction thereof on the mount base member by b times. Takahashi is completely silent with respect to the ratio of pitch differences before and after thermal compression bonding. Therefore, claim 24 is not anticipated.

Claim 25 calls for the pitch of the second terminal bank prior to thermal compression bonding being 1/b times the pitch of the first terminal bank. Subsequent to the thermal compression bonding of the mount base member to the substrate, the second terminal bank expands in width in the transverse direction thereof on the mount base member by b times. Takahashi is completely silent with respect to the relative pitch of the first and second terminal banks before and after thermal compression bonding as claimed. Therefore, claim 25 is not anticipated.

CONCLUSION

It is believed that all of the stated grounds of rejection have been properly traversed, accommodated, or rendered moot. Applicant therefore respectfully requests that the Examiner reconsider and withdraw all presently outstanding rejections. It is believed that a full and complete response has been made to the outstanding Office Action, and as such, the present application is in condition for allowance. Thus, prompt and favorable consideration of this amendment is respectfully requested. If the Examiner believes that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at (248) 641-1600.

Respectfully submitted,

Dated: December 20, 2002

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ATTACHMENT FOR CLAIM AMENDMENTS

The following is a marked up version of each amended claim in which underlines indicates insertions and brackets indicate deletions.

1. (Twice Amended) A manufacturing method for manufacturing an electro-optical device having an electro-optical panel with a substrate holding an electro-optical material and a mount base member bonded to the substrate, the manufacturing method comprising:

a step of connecting a first terminal bank, formed on the surface of the substrate, to a second terminal bank formed on the surface of the mount base member, the second terminal bank being at a pitch which is smaller than [different from] a pitch of the first terminal bank when the substrate is thermal compression bonded to the mount base member, the mount base member having a linear thermal expansion coefficient that is larger than a linear thermal expansion coefficient of the substrate,

wherein the connection step directly connects the first terminal bank [and] to the second terminal bank such that the pitch of the first terminal bank and the pitch of the second terminal bank become substantially equal to each other when the substrate and the mount base member are deformed during the thermal compression bonding of the substrate and the mount base member.

9. (Twice Amended) A terminal connection method for connecting a first terminal bank formed on the surface of a first base member to a second terminal bank formed on the surface of a second base member, the connection method comprising the steps of:

fabricating the second terminal bank at a pitch that is smaller than [different from] a pitch of the first terminal bank, the second base member having a linear thermal

expansion coefficient that is larger than a linear thermal expansion coefficient of the first base member; and

directly connecting the first terminal bank [and] to the second terminal bank;

thermal compression bonding the first base member to the second base member; and

during the thermal compression bonding step, deforming the first base member and the second base member such that the pitch of the first terminal bank and the pitch of the second terminal bank become substantially equal.

14. (Amended) An electro-optical device comprising:

an electro-optical panel including a substrate holding an electro-optical material;

a mount base member thermal-bonded to the substrate, said mount base member having a linear thermal expansion coefficient that is larger than a linear thermal expansion coefficient of the substrate;

a first terminal bank formed on the surface of the substrate;

a plurality of first alignment marks formed and mutually spaced apart on the surface of the substrate;

a second terminal bank formed and mutually spaced apart on the mount base member, wherein the second terminal bank is directly connected to the first terminal bank at a pitch thereof substantially equal to the pitch of the first terminal bank; and

a plurality of second alignment marks formed on the surface of the mount base member, and spaced mutually more apart than the spacing of the first alignment marks.

23. (Amended) A mount base member to be bonded to a substrate of an electro-optical panel, comprising:

a second terminal bank formed at a pitch that is smaller than [different from] a pitch of a first terminal bank formed on the substrate, [and] the second terminal bank directly connected to the first terminal bank; and

a linear thermal expansion coefficient that is larger than a thermal expansion coefficient of the substrate.